

## CLAIMS

1. A diamond-coated silicon comprising a silicon substrate having a thickness of 500  $\mu\text{m}$  or less coated at least partially with electrically conductive diamond.
2. An electrode, comprising an electrically conductive support substrate and the diamond-coated silicon according to claim 1.
3. The electrode according to claim 2, wherein at least one portion of the electrically conductive support substrate is bonded to the diamond-coated silicon.
4. The electrode according to claim 2, wherein at least one surface of the electrically conductive support substrate is bonded to the diamond-coated silicon.
5. The electrode according to claim 3 or 4, wherein the electrically conductive support substrate is bonded to the diamond-coated silicon with an electrically conductive bonding material.
6. The electrode according to any one of claims 3 to 5, wherein the bonding is performed by welding or adhesion.